

## CLAIMS

What is claimed as being new and desired to be protected by LETTERS PATENT of the United States is as follows:

1. A lantern and fuel system for allowing a user to safely and conveniently use a liquid fuel to provide heat and light, comprising in combination:

a fuel tank fabricated of metal having a generally hemispherical configuration with a flat bottom and a hemispherically shaped side wall thereby forming a cavity there within with the side wall having a pressure gauge opening and pressure gauge stub with a male threaded outward end, and a pump opening and pump stub with a male threaded outward end, the stub having an associated check valve contained therein and a vaporizer opening into the cavity of the fuel tank;

a pressure gauge subassembly having a readable indicator and a pressure bleed-off screw and a threaded collar to couple the pressure gauge subassembly to the pressure gauge stub of the fuel tank;

a pump subassembly having a shaft with an upper end and a lower end, the upper end having a gripping handle and the lower end having a pump portion with a beveled seat and an O-ring associated thereto to provide a seal for pumping, the subassembly being positioned in the pump stub of the fuel tank between the cavity of the tank and the end of the pump stub, the shaft of the

pump passing through a threaded stub cap, the threaded stub cap being coupled to the pump stub of the tank;

the lower end of the pump subassembly further having an inner guard of a cylindrical configuration and being adjacent to an interior face of the beveled seat, an outer guard of a cylindrical configuration and recessed portion therebetween, a second O-ring retained on the recessed portion;

a lower skirt having a hollow tubular configuration having an outer surface and an inner surface and a wall thickness therebetween with the lower skirt having continuous bottom portion of a first diameter having a valve slot, and a multi-perforated upper portion having a second diameter with a flare, with the upper portion having an ignition slot and a valve slot there through, the flared upper portion having a lip with a plurality of upwardly directed connecting rod holes there through;

a lower skirt cap having a flat round disk-like planar configuration with a plurality of holes there through, the cap being sized to fit within the first diameter of the lower skirt, the cap having a central screw hole for coupling with the tank;

an ignition bowl having a generally U-shaped configuration and a up-pipe, the up-pipe having a hollow tube configuration with an upper end and a lower end, with a beveled upper end and an aperture into the tube at the lower end of the pipe, with the pipe being coupled to the ignition bowl at the lower end and the ignition bowl coupled to the cap;

a safety cover having a round flat disc-like configuration with a plurality of holes there through, the safety cover having a diameter sized to fit securely within the second diameter of the lower skirt, the cover having a Z-shaped upward projection coupled thereto, the projection having a notch at the uncoupled end;

a heat resistant glass chimney having a round tubular configuration having a first length with an outside diameter sized to be received and securely contained within the inside of the flare of the lower skirt;

an upper skirt having a hollow tubular configuration having an outer surface and an inner surface and a wall thickness there between, with the upper skirt having flared lower portion with a lip having a plurality of downwardly oriented connecting rod holes there through, with the upper portion having a plurality of handle coupling threaded studs at opposite sides, with the upper portion of the upper skirt having a third diameter being larger than the first diameter and smaller than the second diameter, the upper portion having a plurality of upwardly oriented slots there through, with the upper skirt having a central opening at the uppermost extent having a diameter of approximately the first diameter;

a lantern top cap having a hollow tubular lower portion and an outwardly flared upper portion with the upper portion having a flat top, the lower portion having a plurality of openings there

through, and the lower portion having a mixing chamber, with the lower portion of the lantern top cap coupling with the upper skirt;

a plurality of connecting rods comprising a shaft with each end having a male thread and an associated nut, the rods sized to be received into the connecting rod holes of the lower skirt and the upper skirt, the rods coupling to the upper and lower skirt with the nuts being tightened on the rods to firmly hold and contain the glass chimney there between;

a vaporizer having a lower subassembly and an upper subassembly, the lower subassembly with an upper end and a lower end, the lower end having a top end and a bottom end, the bottom end having a tubular configuration and projecting downward into the tank cavity through the vaporizer opening in the tank to a point near the bottom of the tank cavity, the top end having a valve housing coupled thereto, the bottom end having a coupling means to couple the lower subassembly to the tank, the bottom end having a check valve at its lowermost extent, the top end having a T-shaped tubular body with an upper extension and a lower extension and a side end control stub located to protrude through the valve slot of the lower skirt, with the upper extension having a flare coupling nut, the lower subassembly having a handle and a handle shaft having a handle end and an actuating end, the shaft coupled to the control stub with the handle shaft running the length of the control stub with the shaft having a

protrusion at the actuating end, the upper vaporizer subassembly having a lower flared end with an associated coupling nut and a tubular riser and two warming coils, the warming coils having a curved tubular configuration and coupling at each end of the coil with the tubular riser, with the tubular riser having a first internal diameter and a second internal diameter with the first larger internal diameter running from the lower most extent of the upper subassembly to the point midway between the coupling points of the first lower coil where the diameter decreases to the second smaller diameter to a point immediately below the attachment of the first coil then the diameter increasing to the first larger diameter and running to a point midway between the coupling points of the second upper coil where the diameter decreases to the second smaller diameter to a point immediately below the attachment of the second coil then the diameter increasing to the first larger diameter and running to uppermost extent of the upper subassembly, with the upper most extent of the upper subassembly having a female thread and an associated male threaded nipple, the nipple with an associated threaded jet needle, the nipple having an aperture of between about 18/1000 inch and 24/1000 inch there through centrally located and oriented in an upward direction;

a vaporizer shaft having an upper shaft and a lower shaft and a shaft connector with each shaft sized to fit loosely within the tubular body of the valve with the lower shaft threadedly

coupling with the shaft connector and the vaporizer lower subassembly check valve and operating the valve as the handle shaft is turned, and the upper shaft threadedly coupled with the connector and the jet needle so that rotation of the knob performs one of the two operations which include the opening of the lower check valve to allow the passage of fuel and the engagement of the needle into the aperture of the nipple,

a quantity of steel wool wrapped around the vaporizer shaft;

a J-shaped mixing tube having an internal diameter and an external diameter and a wall thickness there between, the tube having an internally coupled wire mesh and an internal rotatably movable baffle plate with an associated rotation shaft, the tube having a longer portion and a shorter portion, the shorter portion of the mixing tube having a baffle plate aperture with the rotatable baffle located within the internal diameter of the tube with the rotation shaft protruding through the plate aperture, the shorter portion coupling with the lantern top cap between about 3/4 and 2 inches from the jet aperture of the vaporizer forming a mixing chamber, the longer portion protruding downward toward the center of the glass chimney;

a mantel coupled to the short portion of the mixing tube and suspended within the glass chimney; and

a quantity of combustible liquid to be used in the system as a fuel.

2. A lantern and fuel system with a pump subassembly, the pump subassembly adapted to facilitate the forming of a tight seal in the system during pumping, the pump subassembly including a beveled seat having an interior end with a cylindrical configuration constituting an interior guard with a first O-ring on the seat adjacent to the interior guard, the beveled seat having an exterior end with a cylindrical configuration constituting an exterior guard with a second O-ring on the seat adjacent to the exterior guard, and an intermediate guard on the seat between the first O-ring and the second O-ring, the first and second O-rings being fabricated of an elastomeric material with an essentially common diameter, the interior and intermediate guards being spaced an essentially common first distance from the first O-ring and the exterior and intermediate guards being spaced an essentially common second distance from the second O-ring and with the second distance being greater than the first distance.

3. A lantern and fuel system with a pump subassembly, the pump subassembly including a beveled seat having an interior end with a cylindrical configuration constituting an interior guard with a first O-ring on the seat adjacent to the interior guard, the beveled seat having an exterior end with a cylindrical configuration constituting an exterior guard with a second O-ring on the seat adjacent to the exterior guard, and an intermediate guard on the seat between the first O-ring and the second O-ring.

4. The system as set forth in claim 3 wherein the first and second O-rings being fabricated of an elastomeric material.

5. The system as set forth in claim 3 wherein the first and second O-rings are of an essentially common diameter.

6. The system as set forth in claim 3 wherein the interior and intermediate guards are spaced an essentially common first distance from the first O-ring and the exterior and intermediate guards are spaced an essentially common second distance from the second O-ring and with the second distance being greater than the first distance.